

REMARKS

Claims 22, 24, 25 and 30 are pending examination. Claims 1-21, 26-29 and 31-49 stand cancelled as being drawn to non-elected subject matter. Claim 23 has been canceled herein without prejudice. Claim 22 has been amended to incorporate the formula of Original Claim 23. No new matter has been added by this amendment.

Reconsideration of the application is requested in view of the following remarks.

Interview Summary

On April 28, 2009, Examiner Laura L. Stockton participated in a telephonic discussion with Attorney for Applicant, Nicholas J. DiCeglie. During this discussion, the Pre-Appeal Brief review conference was discussed. The Examiner expressed that Original Claim 22 was interpreted to mean that the tetrahydrofuran was not necessarily coordinated to the ethyl bromozincacetate and suggested the incorporation of the formula from Claim 23. The Examiner also expressed that the phrase "no single crystals were obtained" in Dekker et al. (*Organometallics*, 3(9), pp. 1403-1407, 1984) could be interpreted to mean only that no crystals of sufficient quality for crystallography were obtained and not that no crystals of any kind were obtained.

Applicant respectfully thanks the Examiner for discussing the Pre-Appeal Brief review process in greater detail and for further explaining the interpretations being used in the examination of the present claims.

Interpretation of Claim 22.

The Examiner stated that Claim 22 was interpreted to mean that while tetrahydrofuran could be coordinated to the ethyl bromozincacetate, no such coordination was required. Applicant respectfully disagrees.

Applicant respectfully submits that the coordination of THF is essential for the crystal of the present invention. As described in the Specification at page 60, lines 12-21, Applicant succeeded in preventing crystallization from a solution of Reformatzky reagent (ethyl bromozincacetate) at a relatively high concentration by using DME or CPME in place of THF.

This is because crystallization of ethyl bromozincacetate with DME or CPME is difficult and requires coordination of THF for crystallization of ethyl bromozincacetate.

More specifically, the resulting solutions of ethyl bromozincacetate in DME or CPME are very stable without causing crystallization and when the solutions are maintained at 0-5°C, these solutions can be used as a reagent substantially without any problem in production for at least one month. See, page 60, lines 23-29 and page 165, line 1 to page 168, line 17 (Examples 73 and 74). Further, the present inventors succeeded in crystallizing and isolating ethyl bromozincacetate • THF binuclear complex from these solutions by adding THF to the DME solution and CPME solution. See the English Text, page 61, lines 2-5.

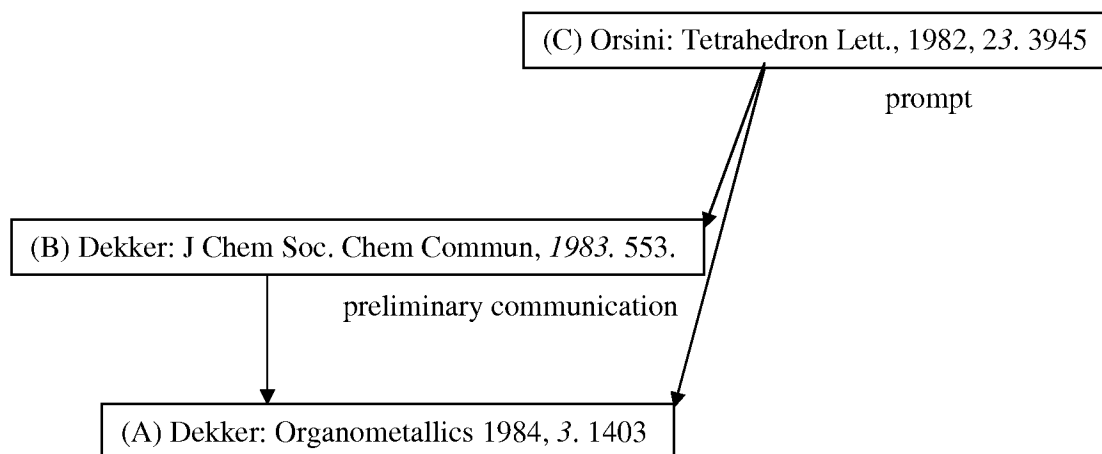
As such, THF is essential to crystallize ethyl bromozincacetate and, thus, the crystal of claim 22 requires the THF to be coordinated. Nevertheless, and solely for the purposes of advancing the prosecution of the instant application, Claim 22 has been amended to include the formula from original Claim 23; i.e. “a formula $(\text{BrZnCH}_2\text{COOC}_2\text{H}_5 \cdot \text{THF})_2$.”

Rejections under 35 USC §102(b)

Claims 22-25 and 30 stand rejected under 35 USC §102(b) over Dekker et al. (*Organometallics*, 3(9), pp. 1403-1407, 1984). The Final Office Action alleged that Dekker et al. disclosed the ethyl ester of bromoacetic acid in dimeric form. The Office Action specifically pointed to Dekker's abstract on page 1403, Table II in the second column of 1404, and the “Discussion” on page 1406 in column 1 and column 2, as well as equilibria (2) on line 3.

Furthermore, the Examiner stated that the Review Panel believed the term “no single crystal was obtained” may properly be interpreted to mean that while some crystals may have been obtained, no crystal of sufficient quality for characterization was obtained. Applicant maintains that Dekker makes no mention of obtaining *any crystals* of the reagent described in Dekker.

Nevertheless, Applicant respectfully draws the Examiner to the following references, which when considered chronologically demonstrate that no crystals were obtained.



Dekker et al. describes in *Organometallics* 1984, 3, 1403 (hereinafter, referred to as "Article A") that part of this work had been published as a preliminary communication (p 1403, right column, lines 16-17), *J. Chem. Soc., Chem. Commun.*, 1983, 553 (hereinafter, referred to as "Article B"). Article A was published one year later and is, therefore, the latest article involving the contents of Article B. In addition, an article by Orsini et al., *Tetrahedron Lett.*, 1982, 23, 3945 (hereinafter, referred to as "Article C") promoted Dekker's study from the phase at Article B to the phase at Article A.

The Examiner considers that although Dekker et al. could not obtain a crystal of the Reformatsky reagent (1) derived from $\text{BrCH}_2\text{CO}_2\text{Et}$ (Article B, page 554, left column, lines 3-4) capable of being characterized (i.e., "single crystal"), they may have obtained some kind of crystals. Applicant notes that the phrase in question by the Examiner is followed by the phrase "this study had to be confined to the characterization of the species in solution."

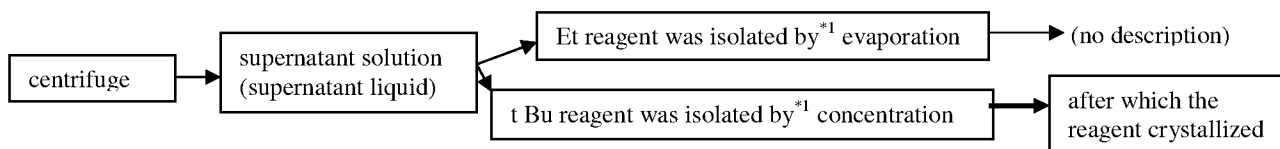
On the other hand, the Reformatsky reagent prepared from zinc and $\text{BrCH}_2\text{CO}_2\text{Bu}^t$ in tetrahydrofuran (THF) was a microcrystalline compound, and Dekker grew single crystals of this compound from the microcrystalline compound to determine its structure by X-ray diffraction analysis.

That is to say, if Dekker et al. had obtained a microcrystalline compound of $\text{BrZnCH}_2\text{CO}_2\text{Et}$, they would have grown its single crystals to determine its structure by X-ray diffraction analysis as they had with the tert-butyl reagent. The fact that Dekker, did not perform

X-ray diffraction analysis on a compound of $\text{BrZnCH}_2\text{CO}_2\text{Et}$ implies that *they could not obtain even a microcrystalline compound* of $\text{BrZnCH}_2\text{CO}_2\text{Et}$.

According to the section entitled "Preparation of the Reagent" of Article A (page 1404, lines 5-17), *the same procedures were carried out for both* the ethyl reagent and the tert-butyl reagent for isolation (* 1) from supernatant solutions obtained by centrifuging reaction mixtures. After the procedures, only the tert-butyl reagent crystallized. If some kind of crystal of the ethyl reagent had formed, the above isolation procedure (*1) would have lead to crystallization of the ethyl reagent. The fact that Dekker did not disclose any characterization of the species in its crystalline form implies that they could not obtain any crystal forms of $\text{BrZnCH}_2\text{CO}_2\text{Et}$.

Represented Graphically:



Dekker describes in the "Results" section of Article A that the report of Orsini et al. on the crystallinity of the reagent derived from the tert-butyl ester of bromoacetic acid prompted them to determine the crystal structure of this reagent. This description clearly indicates that the t-butyl reagent by itself encouraged Dekker et al. to do their crystal structural study. Here, crystallinity is an ability to become a crystal regardless of a microcrystalline or a single crystal.

Thus, it is clear that prior to Article A, neither of crystal forms of the Ethyl reagent nor the t-Butyl reagent had been obtained. This is consistent with the description regarding procedures from isolation to crystallization in the "Preparation of the Reagent" section of Article A.

As already described above, Dekker obtained a single crystal of the t-Butyl reagent by growing a microcrystalline compound based on the study of Orsini et al. described in Article C.

Since Article C describes that Dekker was indeed successful with t-butyl bromoacetate: from a 2M solution of t-butyl bromoacetate in tetrahydrofuran (in presence of an equimolecular amount of zinc wool), it can be recognized that Orsini et al. certainly obtained a microcrystalline of the t-Bu reagent.

On the other hand, since Article C describes that the Et reagent in THF did not result in the isolation the Reformatsky intermediate without contamination of an ethyl acetoacetate byproduct. That is, Orsini et al. could not isolate the Et reagent.

In sum, Orsini et al. isolated a microcrystalline product of the t-Bu reagent; but could not isolate the Et reagent. Based on Orsini, it is clear that in order to obtain a “single crystal” Dekker first obtained a microcrystalline product of the t-Bu reagent which was used to grow a single crystal of the t-Bu reagent from the microcrystalline product for analysis. As Orsini was unable to obtain any crystals of the Et reagent, it is clear that Dekker was also unable to obtain any crystals of the Et reagent.

As such, the cited reference fails to teach or suggest the features of the claimed invention. Therefore, Applicant respectfully requests reconsideration and withdrawal of the rejection of Claims 22-25 and 30 under 35 USC §102(b) over Dekker.

In view of the foregoing, Applicant believes the pending application is in condition for allowance.

PETITION FOR EXTENSION AND FEE AUTHORIZATION

Applicant requests a three-month extension of time for filing the within response. The Commissioner is hereby authorized to charge the fee for the extension and any other fees due or asserted to be due with this response to Deposit Account No. 04-1105.

Dated: July 9, 2009

Respectfully submitted,

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